Appendix Seven: Report on the cremated bone from Bargrennan 2004 and 2005

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Introduction

The aims of the anthropological analysis of these cremated remains were:

-to establish whether the remains were human, animal or both;

-to establish how many individuals were represented in each deposit;

-to establish, if possible, the age and sex of the individuals;

-to make inferences about the pyre technology and cremation processes used in the cremation of these remains.

The bone was excavated in the field stratigraphically, and stored in tin foil at a low temperature prior to analysis. Most of the material was already separated from the soil within which it was found, but soil still adhered to the bones. The bone was quite robust, and survived in large pieces, so wet sieving was deemed the best method for cleaning the bones (McKinley 2000, 414). The remains were then thoroughly dried. All material was then sieved again into different sizes (Table A7.1), following McKinley (1994) and identifiable fragments retrieved by hand for further analysis.

Cremated bone from Bargrennan 2004

Summary

Cremated bone was recovered from two features:

-The pit next to the passage, originally excavated by Piggott and Powell in 1949 (pit 1).

-The cist insertion which contained a large cordoned urn with cremated bone.

All cremated material from these contexts appeared to be human. The large urn contained the remains of a single individual, almost certainly an adult male. This person seems to be have cremated, or his remains inurned, with a copper or copper alloy object. The material from both features was efficiently cremated, with maintained pyre temperatures of over 800°C.

Results: Pit 1 (Piggott and Powell's pit: cut 038, fill 027)

Only a very small quantity of cremated bone was recovered from this context, as the pit had already been almost fully excavated in 1949. As such very little could be said about this material. It has all the characteristics of being from a human, with nothing to suggest that this was a cremation of an animal or animals. However, there is not enough material to indicate whether this was an adult or child, a single individual or many. The bone was thoroughly calcined throughout, suggestive of a high firing temperature (800-900° C).

A single long bone fragment was selected and submitted for C-14 and produced a date of 3560+-35BP. Please see appendix 10 for more detail on the radiocarbon dates.

Results: Cist insertion containing cordoned urn (contexts: 024 pot and contents, 031 cut)

Cremated bone was found primarily in the large collared urn contained within the cist and was excavated in the laboratory. However, cremated bone was also found outside the pot, in particular at the base of the packing stones (023) and on top of a small layer of stones found immediately beneath the slab on which the pot stood (035). Due to the activity of a small rodent as well as the collapse of the cist at some point prior to excavation, the sides of the collared urn had given way in places, allowing bone to spill from the pot. In the lab it was also noted that bone from different contexts shared key characteristics, so all the bone was considered as a single deposit.

The total weight of cremated material deposited in the urn was 1272.5g. Fragmentation data are given in Table A7.1. Identifiable elements consisted of fragmentary portions of skull, ribs, vertebrae, upper and lower limbs. A few roots from permanent incisor-canine-premolar dentition were also recovered, as was the intact dentine crown and roots of a mandibular first molar.

The assemblage was consistently chalky white throughout, including cortical sections. A light bluey-green staining, or patination was noted on a number of cranial fragments.

Bone size	Weight	Percentage
>10mm	862g	67.7%
>5mm	341g	26.8%
>2mm	65.5g	5.2%
<2mm	4g	0.3%
Totals	1272.5g	100%

Table A7.1. *Fragmentation data from cremated material from cordoned urn*

Archaeological cremation deposits typically produce an average of 900g of skeletal material from a single adult, varying in range from as little as 100g to 1500+g, depending on circumstances (Chamberlain this volume). This cremation, therefore, would be the appropriate amount to be the remains of a single individual (cf. McKinley 1993; 2000, 415).

Diagnostic pieces were then retrieved and weighed.

Teeth: almost certainly those of an adult. There were no duplications in the teeth, indicative of a single individual.

A second mandibular molar displayed occulsal attrition on its surviving dentine crown, and is therefore likely to represent an individual in their mid-20s or possibly older (Brothwell 1981; Miles 1963). The remaining dentition indicates a minimum age of 12 years.

Weight of skull frags.	67g
Weight of teeth	4g
Other identifiable pieces	314g

Table A7.2. *Diagnostic pieces by weight*

Fig. A7.1. *Teeth from cist cremation*

Skull: Cranial sutures were obliterated internally but not externally. This is suggestive of an older sub-adult or younger to middle adult and is consistent with the dental evidence. Robust, well developed internal and external occipital protuberances suggest male sex.

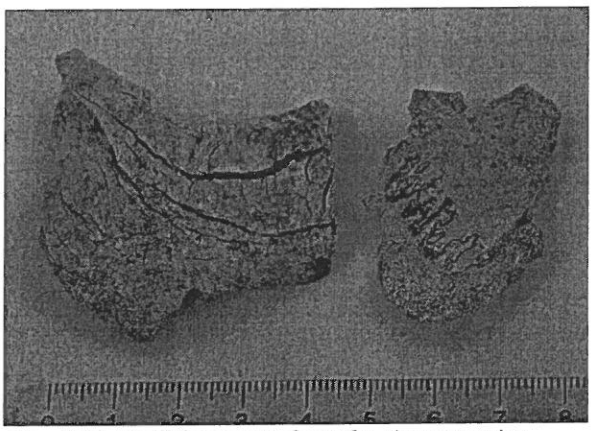

Fig. A7.2. *Skull fragments from the cist cremation*

Vertebrae: Osteophytic lipping of vertebral bodies was noted. This condition is more commonly associated with individuals over c.30 years of age, but it is not a very reliable indicator of age and can develop in younger individuals. The relatively large size of the vertebra is also tentatively suggestive of a male.

Other bones: a number of rib fragments were identified as were a few intact hand phalanges. There were also numerous long bones from both upper and lower limbs.

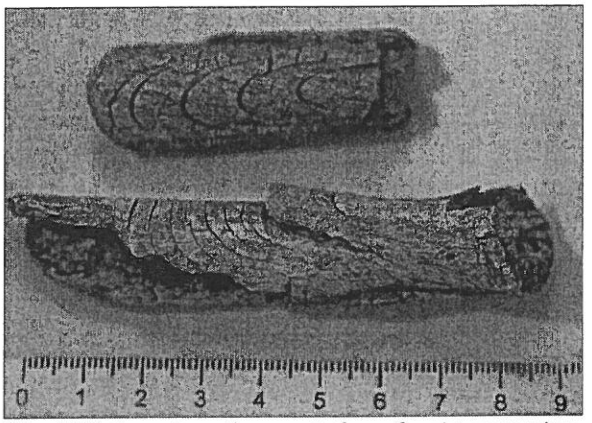

Fig. A7.3. *Long bone fragments from the cist cremation*

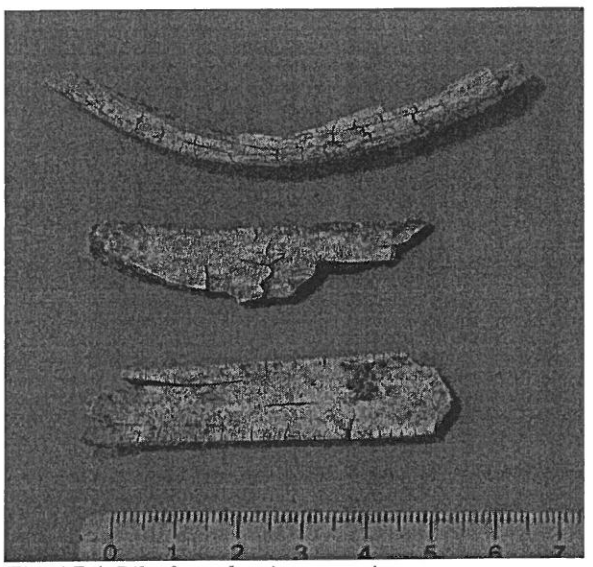

Fig. A7.4. *Ribs from the cist cremation*

Sexing: The robust nature of the vertebra, the occipital protuberances and femoral fragments all suggest that these were the remains of a male.

Ageing: There were less indications of age, but it was estimated that this individual was likely to have lived to at least his mid 20s and possibly to his mid 30s.

Pyre technology: these remains were very efficiently cremated, leaving no charred or grey coloured patches. All bones were pure white. This is consistent with a large, efficient pyre with good air circulation, maintained for a number of hours and reaching temperatures in excess of 800°C (McKinley 2000, 407). A light blue-green staining was also noted on a number of the bones,

which suggests that the individual may have been cremated with a copper or copper alloy object (O'Berg 1992; McKinley 2004), or deposited with a copper object post-cremation.

A single long bone fragment was selected for radiocarbon analysis. It was dated to 1870-1610 BC.

Cremated bone from Bargrennan 2005

Summary
Cremated bone was recovered from a number of contexts:
-In pit 2, a feature outside the perimeter of the cairn, also containing a large upturned Bronze Age urn (045)
-A cremation inserted into the cairn to the south-east of the passage, associated with a quartz scraper (pit 4)
-Remaining fragments from the cist (035 and 058)
All cremated material from these contexts was human, with no evidence for cremated animal remains. The cremation in the pot in pit 2 was that of a teenager, probably aged between 15 and 16. The second cremation insertion associated with the quartz scraper (pit 4) is probably that of an adult. The bones from the cist are consistent with the results of last year's report.

Results: Pit 2 containing collared urn, battle axehead and bone belt hook found outside the monument (045)
A few fragmentary remains were found outside the pot in the pit. These may have been moved through bioturbation, as a burrow was located either side of, and going through, the pot. All bones are very fragmentary and are probably human. There is a tooth root, a small piece of skull and a possible humerus. They have a 'soapy' feel, which suggests they have been subjected to water action (consistent with the remainder of the bones).

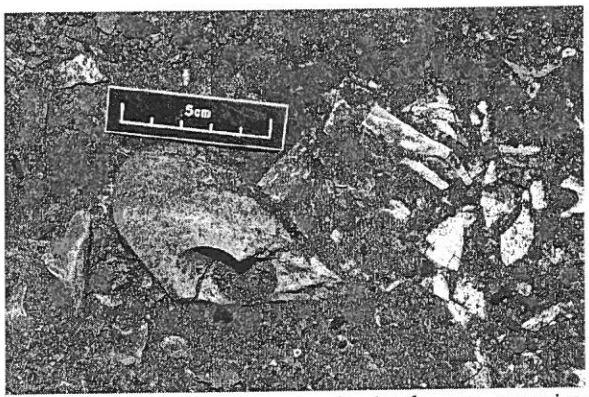

Fig. A7.5. Cremated bone in situ in the pot, associated with fragments of a battle axehead

A large quantity of cremated bone was found in the large collared urn contained within the pit feature and was excavated in the laboratory. The total weight of cremated material deposited in the urn was 1335.2g. Fragmentation data are given in Table A7.3. Identifiable elements consisted of cranial vault fragments, limb bones, vertebrae, ribs, tooth roots, a left and right petrous temporal (inner ear) and bones of the hand and wrist.

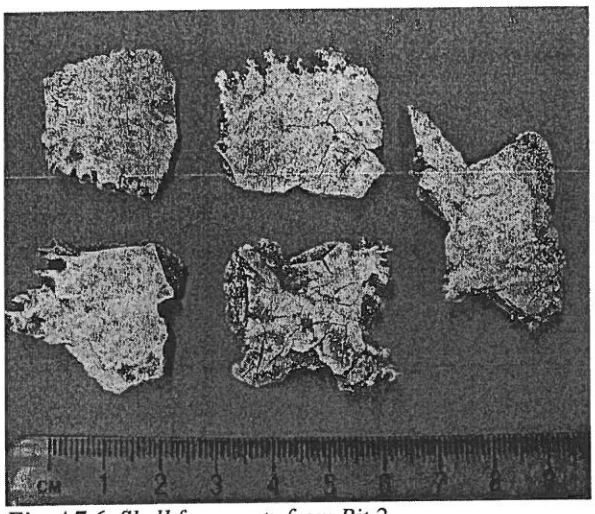

Fig. A7.6. Skull fragments from Pit 2

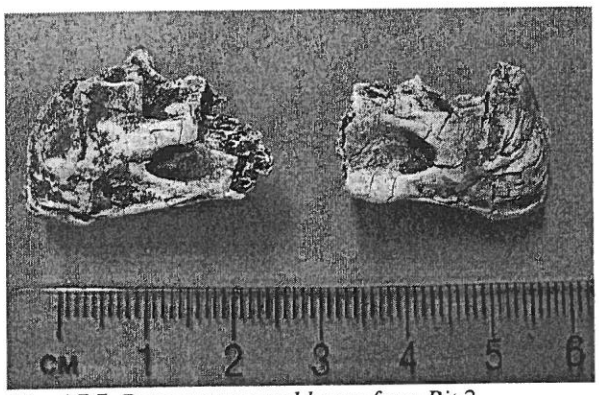

Fig. A7.7. Petrous temporal bones from Pit 2

The assemblage was consistently chalky white throughout, including cortical sections. A light bluey-green staining, was noted on a couple of fragments.

Table A7.3. Fragmentation data from cremated material in the urn in pit 2

Bone size	Weight	Percentage
>10mm	741.3g	55.5
>5mm	368.2g	27.6
>2mm	213.8g	16.0
<2mm	11.9g	0.9
Totals	1335.2g	100%

Archaeological cremation deposits typically produce an average of 900g of skeletal material from a single adult, varying in range from as little as 100g to 1500+g, depending on circumstances (Chamberlain this volume). This cremation, therefore, would be the appropriate amount to be the remains of a single individual. This is supported by the lack of anatomically duplicated material in the cremation.

Sexing: There was nothing to support either a male or female sexing for these skeletal remains. The fairly robust nature of the material is suggestive of a male, but this is conjecture only.

Ageing: There were stronger indications with regards the age of this individual. The diagnostic bones were a left and right hamate with fused hook, indicating an age over c.12 years (Scheuer and Black 2000, 328). However, there were also many fragments of unfused metaphyses and epiphyses, among which was an identifiable hand phalange with unfused base, which indicates an age below c.16.5 years (Scheuer and Black 2000, 338). The evidence, therefore points to an individual between 12 to 16.5 years; the relatively robust nature of the bones may suggest that the individual fell within the older part of this spread.

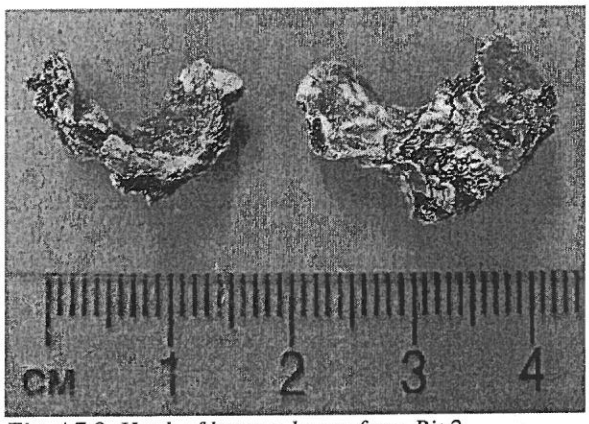

Fig. A7.8. *Hook of hamate bones from Pit 2*

Pyre technology and post cremation retrieval. These remains were very efficiently cremated, leaving no charred or grey coloured patches. All bones were pure white including cortical sections. This suggests a large, efficient pyre with good air circulation, maintained for a number of hours and reaching temperatures in excess of 800°C (McKinley 2000, 407). The bones were rather 'soapy' with smooth fracture edges, which is almost certainly a result of weathering. A light blue-green staining was also noted on a couple of the bones, which suggests that the individual was cremated or inurned with a copper or copper alloy object (O'Berg 1992; McKinley 2004). A tarry substance was also found fused on a couple of bone fragments: we do not know what this represents, other than the likely residue of some other material from the pyre.

Cranial fragments were retrieved and weighed. There was a total of 62g, which, at 4.6% of the total assemblage, is an under-representation of the skull. Skull weight constitutes approximately 18% of an adult skeleton and this proportion is maintained in incinerated bones (Trotter and Hixon 1974; cf. McKinley 2004, 11.). Only a small number of tooth root fragments were present. A number of hand bones were present, but few foot bones. McKinley (1989, 72-3; 2000, 415) has discussed the relationship between the character of cremated remains and the possible mode of collection from the pyre. The absence of burnt stone, the degree of fragmentation, and minimal quantities of pyre debris all suggest that bone was hand picked from the cooled pyre debris, or possibly scooped up and lightly winnowed. The noted under representations further suggest that the collection of bone after cremation concentrated on the core of the pyre, with less collection from the peripheral edges.

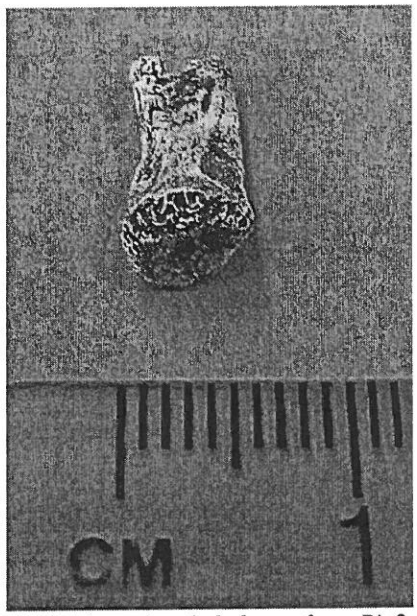

Fig. A7.9. *The unfused phalange from Pit 2*

A single long bone fragment was selected for radiocarbon analysis. It was dated to 1890-1690 BC.

Results: cremation inserted into the cairn to, associated with a quartz scraper: pit 4 (060)

A small quantity of cremated bone was recovered from an insertion event in the cairn, to the south-east of the passage. The remains are very small, with evidence of weathering. These are the remains of a human, with nothing to indicate animal remains. Part of a humerus was selected for C-14 dating, which produced a date of 2140-1920 BC.

Results: remaining fragments from the cist (035 and 058)

A few fragments of cremated bone were recovered from contexts which were originally part of the cist cremation deposit. Fragments from 035 had blue-green staining, also found on the bones in and around the pot and cist, and as noted previously, indicative of the presence of copper objects. Identifiable remains include an end finger phalange, with a fused epiphysis and an ulna shaft. The phalange indicates a likely adult, again consistent with the bone from the cist. From context 058 there was a cranial fragment.